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lence of winds in the region of the Plains is hostile to agriculture, by reason of the increased transpiration from vegetation and the evaporation from the soil thereby produced; and trees planted in masses or large groves, in selected locations, form excellent wind-breaks and protect the crops for some distance to leeward of them. The Bulletin contains full descriptions of the various experimental plantings and is well illustrated.

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BACTERIOLOGICAL NOTES.

THE bearing of optical aids upon the growth of our knowledge of disease-producing germs is well illustrated by two contributions recently made to the Ninth International Congress of Hygiene and Demography, held at Madrid. The work of Loeffler and Frosch on the ætiology of foot and mouth disease in cattle was reported. The disease-germ of this disease is so small that it passes, contained within the lymph, through Berkefeld filters that hold back the smallest known microorganisms. This germ is thus far known by its effects only, for the highest power of the microscope fails to disclose anything in the filtered lymph, which is yet capable of setting up the disease upon inoculation. That the disease does not depend upon some soluble toxic agent contained within the lymph is proved by the fact that the disease has been transmitted through a series of six animals, the original material, which was employed for the first inoculation, having been obtained from a case of the natural disease. In each successive inoculation the lymph was filtered. We know of no toxic substance so potent, nor, indeed, is it probable that anything but a living and multiplying organism could be so active as to be transmissible through such a number of cattle, each one of which succumbs in turn to the

disease produced. These authors do not even conjecture as to the probable character of the microorganism concerned.

The microorganism of infectious pleuropneumonia of cattle has also been sought by many bacteriologists. It has just been obtained by Nocard and Roux. The lymph taken from the affected lungs is highly infectious and readily produces the disease in cattle upon inoculation. Cultures made with this material had always remained sterile, and most painstaking search had failed to reveal any foreign elements in the lymph. By a novel procedure, first introduced by Metschnikoff, Nocard and Roux succeeded in obtaining cultures of the microorganism. If small sacs (or bladders) made of celloidin are filled with sterile bouillon and placed in the peritoneal cavity of the rabbit they undergo no change, the fluid remains clear and limpid, and the animal is unaffected. If, however, a minute quantity of the lymph from an infected lung is introduced into the sac, after a period the bouillon becomes opalescent. Transplantation from one sac to another brings about similar results. Microscopical examination of the turbid fluid shows an entire absence of wandering or other body cells, but a magnification of 1,600 to 1,800 times brings to light very minute round or elongated bodies which are believed to be the parasites of the disease. After the sacs have remained for a time in the abdominal cavity of the rabbit these animals lose weight and become cachetic. Albumen probably diffuses into the sacs and toxic substances into the peritoneal cavity. These cultures are exceedingly active and produce the typical disease upon inoculation. At first all attempts to cultivate this minute organism outside the body failed, but later through the use of a special culture medium success was achieved.

It is safe to assume that the parasite of foot and mouth disease is much smaller

than that of pleuro-pneumonia, as the latter does not pass through filters designed to exclude ordinary bacteria. And it is also highly probable that a further refinement of the microscope will bring to light not only the organism of foot and mouth disease, but probably many more infinitesimally small living forms.

SIMON FLEXNER.

CURRENT NOTES ON ANTHROPOLOGY.

THE FOLK-SONG SOCIETY.

As a branch of the study of folk-lore, what may be called folk-songs, *Volkspoesie*, has long held a prominent place. Ten years ago Dr. Krejci wrote: "Die Volkspoesie ist der eigenste Ausdruck der Volksindividualität." The time was quite ripe, therefore, when this summer in London the first meeting was held of the 'Folk Song Society,' under the presidency of Lord Herschell. Its aim is to discover, collect and publish folk-songs, ballads and tunes. Meetings will be held from time to time and collections will be published.

The subscription is 10s. 6d. annually, and those who wish to become members should address the Honorary Secretary, Mrs. Lee, 41 Rosary Gardens, London, S. W.

ARTICLES ON WAMPUM.

In the *American Antiquarian* for February there is an article by the Rev. W. M. Beauchamp on 'Wampum Used in Council and as Currency.' He collects a number of examples of both uses from early writers, but acknowledges that "very few shell beads of any kind are met with on the earlier sites of the Huron-Iroquois."

This fact accentuates a historic doubt I have expressed in the *Bulletin* of the Museum of the University of Pennsylvania (May, 1898) that wampum belts were made by the pre-historic Indians. All known to me are later than the discovery and none have been found in ancient burials. Even

the form of bead seen on the belts does not occur in pre-Columbian interments (Holmes).

NATIVE FACE-PAINTING.

PAINTING the face is probably the oldest of the fine arts, at least the learned Dr. Hoernes says so in his last book. That it is not yet extinct we all know. How it is carried on among the Indians of British Columbia is the subject of a handsome monograph written by Dr. Franz Boas and published by the American Museum of Natural History, June, 1898. He explains the complex designs adopted and the symbolism they convey, and adds nearly a hundred illustrations drawn from life. The general artistic principle of the native artist is to force the form into the decorative field in such a way as to bring into view its important parts, at no matter what sacrifice of perspective and natural relations. Conventionalism is carried to the extreme, and it often exercises the ingenuity of the observer to make out what subject is represented.

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SCIENTIFIC NOTES AND NEWS.

THERE were about 200 members in attendance at the Fourth International Congress of Physiologists, which met at Cambridge from the 23d to 26th of August. A number of important papers were contributed, of which we may be able to give some account in a future issue. The Fifth Congress will be held by invitation of Professor Mosso at the University of Turin in the latter part of September, 1901.

AT the closing meeting of the International Congress of Zoology a committee was appointed, consisting of Professor Schulze, Professor Pelseneer, Mr. A. H. Evans and Professor Mark, to report on the practicability of uniformity in abbreviations and other questions of terminology.

AN international congress on maritime fisheries was opened at Dieppe on September 2d.